THAT WHICH IS CLAIMED IS:

1. A method for making an integrated circuit (IC) package with an exposed portion of the IC, the method comprising:

providing a mold including first and second mold portions, the first mold portion carrying a mold protrusion defining an IC-contact surface with peripheral edges and a bleed-through retention channel positioned inwardly from the peripheral edges;

closing the first and second mold portions around the IC and injecting encapsulating material into the mold to form the IC package with the exposed portion adjacent the mold protrusion and while the bleed-through retention channel retains encapsulating material bleeding beneath the peripheral edges of the IC contact surface; and

releasing the IC package from the mold.

2. A method according to Claim 1 wherein said bleed-through retention channel extends adjacent at least a portion of an entire extent of the peripheral edges of the IC-contact surface.

3. A method according to Claim 1 wherein said bleed-through retention channel extends adjacent an entire extent of the peripheral edges of the IC-contact surface.

4. A method according to Claim 1 wherein the mold protrusion has a generally rectangular shape.

5. A method according to Claim 1 further comprising controlling pressure applied by the IC-

contact surface to the IC when the first and second mold portions are closed around the IC.

6. A method according to Claim 5 wherein controlling pressure comprise providing the mold protrusion comprising a resilient material.

7. A method according to Claim 5 wherein controlling pressure comprises mounting the IC on a leadframe having resilient portions to resiliently accommodate downsetting of the IC as the IC-contact surface contacts the IC.

8. A method according to Claim 7 wherein the resilient portions comprise die pad support bars extending between a die pad and adjacent finger portions.

9. A method according to Claim 8 wherein downsetting displaces the die pad below the finger portions.

10. A method according to Claim 8 further comprising shaping bond wires between the IC and the finger portions so that upon downsetting the bond wires have a desired clearance from the IC and an upper surface of the encapsulating material.

11. A method according to Claim 1 further comprising mounting the IC on a substrate prior to closing the first and second mold portions.

12. A method according to Claim 11 wherein mounting the IC comprises mounting the IC so that the substrate covers a back surface of the IC opposite the

exposed portion to prevent the encapsulating material from extending onto the back face.

13. A method according to Claim 1 wherein the encapsulating material and the IC have different coefficients of thermal expansion (CTEs); wherein the encapsulating material is injected at an elevated temperature; and further comprising relieving stress caused by the different CTEs as the IC and encapsulating material cool.

14. A method according to Claim 13 wherein relieving stress comprises using a low stress encapsulating material.

15. A method according to Claim 13 wherein relieving stress comprises providing a leadframe having a die pad with an opening therein, and mounting the IC on the die pad prior with the opening therein prior to closing the first and second mold portions around the IC.

16. A method according to Claim 15 wherein relieving stress further comprises mounting the IC on the die pad with the opening therein by adhesively securing the IC on the die pad using a low stress, low modulus adhesive.

17. A method according to Claim 1 wherein the exposed portion of the IC comprises upper surface portions with active devices formed therein.

18. A method according to Claim 17 wherein the active devices define a sensor.

19. A method according to Claim 17 wherein the active devices define an electric field fingerprint sensor.

20. A method according to Claim 1 wherein the first and second mold portions each comprises rigid material.

21. A method according to Claim 1 further comprising periodically cleaning the mold and the mold protrusion.

22. A method for making an integrated circuit (IC) package with an exposed portion of the IC, the method comprising:

providing a mold including first and second mold portions, the first mold portion carrying a mold protrusion defining an IC-contact surface;

closing the first and second mold portions around the IC to downset the IC under controlled pressure applied by the IC-contact surface to the IC;

injecting encapsulating material into the mold to make the IC package with the exposed portion adjacent the mold protrusion; and

releasing the IC package from the mold.

23. A method according to Claim 22 further comprising mounting the IC on a leadframe having resilient portions to resiliently accommodate downsetting of the IC as the IC-contact surface contacts the IC.

24. A method according to Claim 23 wherein the resilient portions comprise die pad support bars

extending between a die pad and adjacent finger portions.

25. A method according to Claim 24 wherein downsetting displaces the die pad below the finger portions.

26. A method according to Claim 24 further comprising shaping bond wires between the IC and the outer finger portion so that upon downsetting the bond wires have a desired clearance from the IC and an upper surface of the encapsulating material.

27. A method according to Claim 22 wherein the encapsulating material and the IC have different coefficients of thermal expansion (CTEs); wherein the encapsulating material is injected at an elevated temperature; and further comprising relieving stress caused by the different CTEs as the IC and encapsulating material cool.

28. A method according to Claim 27 wherein relieving stress comprises using a low stress encapsulating material.

29. A method according to Claim 27 wherein relieving stress comprises providing a leadframe having a die pad with an opening therein, and mounting the IC on the die pad prior with the opening therein prior to closing the first and second mold portions around the IC.

30. A method according to Claim 29 wherein relieving stress further comprises mounting the IC on the die pad with the opening therein by adhesively

securing the IC on the die pad using a low stress, low modulus adhesive.

31. A method according to Claim 22 wherein the exposed portion of the IC comprises upper surface portions with active devices formed therein.

32. A method according to Claim 31 wherein the active devices define a sensor.

33. A method according to Claim 22 wherein the mold protrusion comprises a resilient material.

34. A method making an integrated circuit (IC) package with an exposed portion of the IC, the method comprising:

providing a mold including first and second mold portions, the first mold portion carrying a mold protrusion defining an IC-contact surface;

mounting the IC on a lead frame having a die pad with an opening therein;

closing the first and second mold portions around the IC and leadframe;

injecting encapsulating material into the mold at an elevated temperature to make the IC package with the exposed portion adjacent the mold protrusion; and

releasing the IC package from the mold.

35. A method according to Claim 34 further comprising using a low stress encapsulating material.

36. A method according to Claim 34 wherein mounting the IC comprises adhesively securing the IC to the die pad using a low stress, low modulus adhesive.

37. A method according to Claim 34 wherein the exposed portion of the IC comprises upper surface portions with active devices formed therein.

38. A method according to Claim 37 wherein the active devices define a sensor.

39. A method according to Claim 34 wherein the mold protrusion comprises a resilient material.

40. A method for making an integrated circuit (IC) package with an exposed portion of the IC, the method comprising:

providing a mold including first and second mold portions, the first mold portion carrying a mold protrusion defining an IC-contact surface;

mounting the IC on a substrate so that the substrate covers a back surface of the IC opposite the exposed portion;

closing the first and second mold portions around the IC and substrate and injecting encapsulating material into the mold to form the IC package with the exposed portion adjacent the mold protrusion and with the substrate preventing the encapsulating material from extending onto the back surface of the IC; and

releasing the IC package from the mold.

41. A method according to Claim 40 wherein the mold protrusion has peripheral edges and a bleed-through retention channel positioned inwardly from the peripheral edges.

42. A method according to Claim 40 wherein the mold protrusion has a generally rectangular shape.

43. A method according to Claim 40 further comprising controlling pressure applied by the IC-contact surface to the IC when the first and second mold portions are closed around the IC.

44. A method according to Claim 43 wherein controlling pressure comprise providing the mold protrusion comprising a resilient material.

45. A method according to Claim 40 wherein relieving stress comprises using a low stress encapsulating material.

46. A method according to Claim 40 wherein the exposed portion of the IC comprises upper surface portions with active devices formed therein.

47. A method according to Claim 46 wherein the active devices define a sensor.

48. A method according to Claim 46 wherein the active devices define an electric field fingerprint sensor.

49. A method according to Claim 40 wherein the first and second mold portions each comprises rigid material.

50. A molding apparatus for making an integrated circuit (IC) package with an exposed portion of the IC, the molding apparatus comprising:

a mold comprising first and second mold portions being movable between closed and released positions; and

a mold protrusion carried by an interior of said first mold portion and defining an IC-contact surface with peripheral edges and a bleed-through retention channel positioned inwardly from the peripheral edges.

51. A molding apparatus according to Claim 50 further comprising an encapsulating material injector for injecting encapsulating material between said first and second mold portions when in the closed position to make the IC package with the exposed portion adjacent said mold protrusion and while said bleed-through retention channel retains any encapsulating material bleeding beneath the peripheral edges of the IC contact surface.

52. A molding apparatus according to Claim 51 wherein said encapsulating material injector injects encapsulating material at an elevated temperature.

53. A molding apparatus according to Claim 50 wherein said mold protrusion comprises a resilient material.

54. A molding apparatus according to Claim 50 wherein said mold protrusion has a generally rectangular shape.

55. A molding apparatus according to Claim 50 wherein said bleed-through retention channel extends adjacent at least a portion of an entire extent of the peripheral edges of the IC-contact surface.

56. A molding apparatus according to Claim 50 wherein said bleed-through retention channel extends

adjacent an entire extent of the peripheral edges of the IC-contact surface.

57. A molding apparatus according to Claim 50 wherein said first and second mold portions each comprises rigid material.

58. A molding apparatus for making an integrated circuit (IC) package with an exposed portion of the IC, the molding apparatus comprising:

a mold comprising first and second mold portions being movable between closed and released positions; and

a mold protrusion carried by an interior of said first mold portion and defining an IC-contact surface being more compliant than the IC to avoid crushing foreign particles into the IC.

59. A molding apparatus according to Claim 58 further comprising an encapsulating material injector for injecting encapsulating material between said first and second mold portions when in the closed position to make the IC package with the exposed portion adjacent said mold protrusion.

60. A molding apparatus according to Claim 59 wherein said encapsulating material injector injects encapsulating material at an elevated temperature.

61. A molding apparatus according to Claim 58 wherein said mold protrusion has a generally rectangular shape.

62. A molding apparatus according to Claim 58 wherein said first and second mold portions each comprises rigid material.